

REMARKS

This is in response to the Office Action dated June 27, 2003. In view of the foregoing amendments and following representations, reconsideration is respectfully requested.

By the above amendment, claims 1-11 and 19-28 are cancelled. Thus, claims 12-15 and 29-36 are currently pending in the present application.

Initially, on page 2 of the specification, Fig. 6 is objected to because the term "control" is misspelled. In response to the Examiner's objection, a corrected drawing is submitted herewith. Note that the term "control" has been corrected in Fig. 6, thereby obviating the objection to the drawings.

Also, the specification has been amended to correct a minor typographical error.

Next, on page 2 of the Office Action, the Examiner correctly advises that claims 31-33 and 34-36 are substantial duplicates. Accordingly, each of claims 34-36 has been amended to depend from claim 13. Since claims 31-33 depend from claim 12, and the two sets of claims are now sufficiently different.

Next, on page 3 of the Office Action, several of the claims are rejected as follows:

Claims 1, 12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Magnussen (U.S. Patent No. 4,616,514);

Claims 1, 12, 15 and 31-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Magnussen in view of Nishi (U.S. Patent No. 3,915,651).

It is submitted that the present invention, as defined in amended claim 12, now clearly distinguishes over the Magnussen and Nishi references for the following reasons.

Magnussen discloses a pipette having a replaceable tip 38. In operation, a shaft 20, including a plunger 28, is depressed downward against a spring 100 so as to move reciprocally between positions A and B to discharge or suck liquid in a cylinder chamber 22. When the shaft 20 is depressed to a position D, a shell 30 also moves downward against a spring 102 (alternatively, a shell 30 can move downward independently of the shaft 20), and thereby finger portions 68, 69 and 70, at a lower portion of the shell 30, open to permit the tip 38 to be removed. After a new tip 38 is attached to the finger portions, the shaft 20 (plunger 28) is moved upward to allow the tip 38 to be clamped by the fingers.

The Magnussen reference also discloses a spring 100, the length of which is extended or reduced in response to movement of the shaft 20. However, the Magnussen pipette clearly lacks a spring, which has a length that is maintained constant with no extension or compression thereof as required in claim 12 of the present invention.

Furthermore, it is noted that the spring 59 of Magnussen appears to function only to hold a spring-holding washer 54, which is located between the spring 59 and the springs 100 and 102.

Nishi is applied by the Examiner to teach a motor drive incorporated into a pipette. The Nishi reference discloses a direct digital control pipette wherein, when a shaft 25 of a stepping motor 14 rotates by a predetermined angle, a shank 27 and a lead screw 28 integral with shaft 25 rotate to allow a slide 32 to move upward and downward. Thereby,

a rod (plunger) 18 moves upward and downward within a reservoir 20 to suck or discharge liquid.

However, Nishi does not disclose or suggest a spring, the length of which is maintained constant with no extension or compression thereof, as required in claim 12 of the present invention.

Furthermore, it is submitted that even if the Magnussen and Nishi were combined, as proposed by the Examiner, such combination would not result in a pipette that would meet each and every limitation of independent claim 12.

In particular, claim 12 defines a pipette including, *inter alia*, a slide shaft and a plunger that move together as a single unit, a motor disposed in coaxial relation with the slide shaft, and a tubular threaded member that is coaxially disposed on the slide shaft and threadedly engaged with an internally threaded hole of the motor. Claim 12 also requires a spring interposed between a predetermined position on the slide shaft and the tubular threaded member.

With this claimed construction, in a motor-driven operation mode, the tubular threaded member is driven by the motor so as to move the plunger vertically to perform suction and discharge of a liquid. Also, during this "motor-driven operation mode", the length of the spring is maintained constant. Therefore, as described on page 30 of the specification, no compressive force is applied to the spring (33) in the motor-driven mode of the pipette. And thus, in the arrangement claimed in claim 12, the driving torque of the motor can be reduced, thereby making it possible to use a pulse motor which can provide a relatively small driving torque.


Clearly, any combination of the Magnussen and Nishi references would not result in an arrangement in which the spring maintains a constant length during operation in a motor-driven mode. Accordingly, it is submitted that claim 12 is clearly allowable over the collective teachings of the Magnussen and Nishi references.

In view of the above, it is submitted that the present application is now clearly in condition for allowance. The Examiner therefore is requested to pass this case to issue.

In the event that the Examiner has any comments or suggestions of a nature necessary to place this case in condition for allowance, then the Examiner is requested to contact Applicant's undersigned attorney by telephone to promptly resolve any remaining matters.

Respectfully submitted,

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